PATENT
Docket No.: **19603/3461 (CRF D-2659A)**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) :	Gary E. Harman	Examiner: I. Marx
Serial No. :	09/927,966	Art Unit: 1638
Cnfrm. No. :	6010	
Filed :	August 10, 2001	
For :	PROMOTING DEEPER ROOT DEVELOPMENT, REDUCING NITROGEN FERTILIZER USAGE, IMPARTING DROUGHT RESISTANCE, AND INCREASING TOLERANCE TO ADVERSE SOIL CONDITIONS IN PLANTS	

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§ 1.97-1.98

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR §§ 1.97-1.98, applicant hereby brings to the attention of the United States Patent and Trademark Office, the enclosed references listed on the attached PTO-1449 form.

Pursuant to 37 CFR §§ 1.17(p) and 1.97(c)(2), enclosed is a check to cover the $180.00 filing fee. The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, to Deposit Account No. 14-1138.

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Respectfully submitted,

Date: December 3, 2003

Georgia Evans
Registration No. 44,597

Nixon Peabody LLP
Clinton Square, P.O. Box 31051
Rochester, New York 14603-1051
Telephone: (585) 263-1672
Facsimile: (585) 263-1600

Certificate of Mailing - 37 CFR 1.8(a)	
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450, on the date below.	
December 3, 2003 Date	Jo Ann Whalen

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPRO-PRIATE
	1	6,251,390	6/26/01	Harman et al.			
	2	6,020,540	2/01/00	Harman et al.			
	3	5,474,926	12/12/95	Harman et al.			
	4	5,433,947	7/18/95	Harman et al.			
	5	5,326,561	7/5/94	Harman et al.			
	6	4,996,157	2/26/91	Smith et al.			
	7	5,165,928	11/24/92	Smith et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANS-LATION IF APPRO-PRIATE
	8	WO 98/32844	7/30/98	WIPO			

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		9	Harman, G. E., "Myths and Dogmas of Biocontrol. Changes in Perceptions Based on Research with *Trichoderma harzianum* T-22," Plant Dis. 84: 377-393 (2000)
		10	Harman et al., "Factors Affecting *Trichoderma hamatum* Applied to Seeds As a Biocontrol Agent," Phytopathology 71: 569-572 (1981)
		11	Taylor et al., "Concepts and Technologies of Selected Seed Treatments," Ann. Rev. Phytopathol. 28: 321-339 (1990)
		12	Lo et al., "Biological Control of Turfgrass Diseases With a Rhizosphere Competent Strain of *Trichoderma harzianum*," Plant Dis. 80:736-741(1996)
		13	Lo et al., "Improved Biocontrol Efficacy of *Trichoderma harzianum* 1295-22 For Foliar Phases of Turf Diseases By Use of Spray Applications," Plant Dis. 81:1132-1138 (1997)

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		14	Harman et al., "Potential and Existing Uses of *Trichoderma* and *Gliocladium* For Plant Disease Control and Plant Growth Enhancement," in: *Trichoderma and Gliocladium*, Harman, G. E. and Kubicek, C. P. (eds.), London: Taylor and Francis, Vol. 2:229-265 (1998)
		15	Harman, G. E., "Development and Benefits of Rhizosphere Competent Fungi for Biological Control of Plant Pathogens," J. Plant Nutrition 15:835-843 (1992)
		16	Brannen et al., "Kodiak: A Successful Biological-Control Product for Suppression of Soil-Borne Plant Pathogens of Cotton," J. Industr. Microbiol. Biotechnol. 19:169-171 (1997)
		17	Kloepper et al. "Plant Growth Promoting Rhizobacteria as Inducers of Systemic Acquired Resistance," in: Pest Management: Biologically Based Technologies, Proceedings of Beltsville Symposium XVIII, Lumsden, R. D. and Vaughn, J. L. (eds.), pp. 156-165 , American Chemical Society, American Washington, D. C. (1993)
		18	Harman et al., "Combining Effective Strains of *Trichoderma harzianum* and Solid Matrix Priming to Improve Biological Seed Treatments," Plant Dis. 73:631-637 (1989)
		19	Kloepper et al., "A Review of Issues Related to Measuring Colonization of Plant Roots by Bacteria," Can J. Microbiol. 38: 1219-1232 (1992)
		20	Raupauch et al., "Mixtures of Plant Growth-Promoting Rhizobacteria Enhance Biological Control of Multiple Cucumber Pathogens," Phytopathology 88:1158-1164 (1998)
		21	Burr et al., "Increased Potato Yields by Treatment of Seedpieces with Specific Strains of *Pseudomonas fluorescens* and *P. putida*," Phytopathology 68:1377-1383 (1978)
		22	Wei et al., "Induction of Systemic Resistance of Cucumber to *Colletotrichum orbiculare* by Select Strains of Plant Growth-Promoting Rhizobacteria," Phytopathology 81:1508-1512 (1991)

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		23	Weller, D.M., "Biological Control of Soilborne Plant Pathogens in the Rhizosphere with Bacteria," Ann. Rev. Phytopathol., 26:379-407 (1988)
		24	Taylor et al, "Liquid Coating Formulation for the Application of Biological Seed Treatments of *Trichoderma harzianum*," Biol. Control 1:16-22 (1991)
		25	Chang et al., "Increased Growth of Plants in the Presence of the Biological Control Agent *Trichoderma harzianum*," Plant Dis. 70:145-148 (1986)
		26	Windham et al., "A Mechanism For Increased Plant Growth Induced By *Trichoderma* spp.," Phytopath. 76:518-521 (1986)
		27	Yedidia et al., "Induction of Defense Responses in Cucumber Plants (*Cucumis sativus* L.) by the Biocontrol Agent *Trichoderma harzianum*," Appl. Environ. Microbiol. 65:1061-1070 (1999)
		28	Deacon, J. W., "Rhizosphere Constraints Affecting Biocontrol Organisms Applied to Seeds," in: BCPC Mongraph 57: Seed Treatment: Progress and Prospects., pp. 315-326, T. Martin, ed. British Crop Protection Council, Farnham, UK. (1994)
		29	da Luz et al., "Seed-Applied Bioprotectants For Control of Seedborne *Pyrenophora tritici-repentis* and Agronomic Enhancement of Wheat," Can. J. Plant Pathol. 19:384-386 (1998)
		30	Datnoff et al, "Biological Control of *Fusarium* Crown and Root Rot of Tomato in Florida Using *Trichoderma harzianum* and *Glomus intraradices*," Biol. Contr. 5:427-431 (1995)
		31	Nemec et al., "Efficacy of Biocontrol Agents in Planting Mixes to Colonize Plant Roots and Control Root Diseases of Vegetables and Citrus," Crop Protect. 15:735-742 (1996)

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		32	De Freitas et al., "Growth Promotion of Winter Wheat by Fluorescent Pseudomonads Under Growth Chamber Conditions," Soil Biology and Biochemistry 24:1127-1135 (1992)
		33	Dubey et al., "Influence of Fast and Slow Growing *Rhizobia* on Growth and Yield of Soybean (*Glycine max*)," Indian Journal of Plant Physiology 5:285-287 (2000)
		34	Germida et al., "Plant Growth-Promoting Rhizobacteria After Rooting Patterns and Arbuscular Mycorrhizal Fungi Colonization of Field-Grown Spring Wheat," Biology and Fertility of Soils 23:113-120 (1996)
		35	Harman et al., "Plant Growth Promotion by *Trichoderma harzianum*," Helsinki Trichoderma/Gliocladium Workshop Abstract (June 1999) (abstract only)
		36	Bioworks, Inc., "Properties of T-22™ PB," Bioworks, Inc. T-22™ PB Tech Update Bulletin (April 2000)
		37	Altomare et al., "Solubilization of Phosphates and Micronutrients by the Plant-growth Promoting and Biocontrol Fungus *Trichoderma harzianum* Rifai 1295-22," Appl. Env. Microbiol. 65:2926-2933 (1999)
		38	Bailey et al., "Direct Effects of *Trichoderma* and *Gliocladium* on Plant Growth and Resistance to Pathogens," in *Trichoderma* and *Gliocladium* 2:185-204, Harman and Kubicek, eds., Taylor and Francis, London (1998)
		39	Baker et al., "Physical, Biological and Host Factors in Iron Competition in Soils," in Iron, Siderophores and Plant Diseases, pp. 77-84, T. R. Swinburne, ed. Plenum Press, New York (1986)

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANS-LATION IF APPRO-PRIATE

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		40	Young et al., "PGPR: Is There a Relationship Between Plant Growth Regulators and the Stimulation of Plant Growth or Biological Activity?" in Plant Growth-Promoting Rhizobacteria: Progress and Prospects, Keel et al, eds. pgs. 182-186 , Interlaken Switzerland (1991)
		41	Di Pietro et al., "Endochitinase from *Gliocladium virens*: Isolation, Characterization, and Synergistic Antifungal Activity in Combination with Gliotoxin," Phytopathology 83:308-313 (1993)
		42	Graham et al., "Micronutrients and Disease Resistance and Tolerance in Plants," in: Micronutrients in Agriculture, pp. 329-370, R. M. Welch, ed. Soil Sci. Soc. Am., Madison, WI (1991)
		43	Harman et al., "Improved Seedling Performance by Integration of Biological Control Agents at Favorable pH Levels with Solid Matrix Priming," Phytopathology 78:520-525 (1988)
		44	Harman et al., "Development of an Effective Biological Seed Treatment System," in: Biological Control of Soil-borne Plant Pathogens, pp. 415-426, D. Hornby, ed., CAB International, Oxon, UK (1990)
		45	Schroth et al., "Disease-Suppressive Soil and Root-Colonizing Bacteria," Science, 216:1376-1381 (1982)
		46	Heckman et al., "Corn Response to Sidedress Nitrogen in Relation to Soil Nitrate Analysis," Commun. Soil Sci. Plant Anal. 27:575-583 (1996)
		47	Lewis et al., "A New Approach to Stimulate Population Proliferation of *Trichoderma* Species and Other Potential Biocontrol Fungi Introduced Into Natural Soils," Phytopathology 74:1240-1244 (1984)

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION IF APPROPRIATE

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		48	Lo et al., "Ecological Studies of Transformed *Trichoderma harzianum* Strain 1295-22 in the Rhizosphere and on the Phylloplane of Creeping Bentgrass," Phytopathology 88:129-136 (1998)
		49	Lorito et al., "Synergistic Interaction Between Cell Wall Degrading Enzymes and Membrane Affecting Compounds," Molec. Plant-Microbe Interact. 9:206-213 (1996)
		50	Sivan et al., "Improved Rhizosphere Competence in a Protoplast Fusion Progeny of *Trichoderma harzianum*.," J. Gen. Microbiol. 137:23-29 (1991)
		51	Zeilinger et al., "Chitinase Gene Expression During Mycoparasitic Interaction of *Trichoderma harzianum* With its Host," Fung. Genet. Biol. 26:131-140 (1999)
		52	Kloepper et al., "Effects of Rhizosphere Colonization by Plant Growth-Promoting Rhizobacteria on Potato Plant Development and Yield," Phytopathology 70:1078-1082 (1980)
		53	Kloepper et al., "Plant Growth Promotion Mediated by Rhizosphere Bacterial Colonizers," in The Rhizosphere and Plant Growth, pp. 315-326, Keister et al. (eds), Kluwer Academic Publishers, The Netherlands (1991)
		54	Lifshitz et al., "Growth Promotion of Canola (rapeseed) Seedlings by a Strain of *Pseudomonas putida* Under Gnotobiotic Conditions," Can. J. Microbiol. 33:390-395 (1987)
		55	Liu et al., "Induction of Systemic Resistance in Cucumber Against Bacterial Angular Leaf Spot by Plant Growth-Promoting Rhizobacteria," Phytopathology 85:843-847 (1995)

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	56	5,601,490	10/29/1991	Paau et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANS-LATION IF APPRO-PRIATE
	57	WO 94/01546	01/20/94	WIPO			
	58	WO 94/26782	11/24/94	WIPO			
	59	WO 99/07207	02/18/99	WIPO			
	60	WO 99/07206	02/18/99	WIPO			
	61	WO 98/54214	12/03/98	WIPO			

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		62	Loper et al., "Influence of Bacterial Sources of Indole-3-Acetic Acid on Root Elongation of Sugar Beet," Phytopathology 76:386-389 (1986)
		63	Anderson et al., "Responses of Bean to Root Colonization with *Pseudomonas putida* in a Hydroponic System," Phytopathology 75(9):992-95 (1985)
		64	Gardner et al., "Growth Promotion and Inhibition by Antibiotic-Producing Fluorescent Pseudomonads on Citrus Roots," Plant and Soil 77:103-13 (1984)
		65	Kloepper, J.W., "Effect of Seed Piece Inoculation with Plant Growth-Promoting Rhizobacteria on Populations of *Erwinia carotovora* on Potato Roots and In Daughter Tubers," Phytopathology 73(2):217-19 (1983)
		66	Kloepper et al., "Plant Growth-Promoting Rhizobacteria on Canola (Rapeseed)," Plant Disease 72(1):42-6 (1988)
		67	Kloepper et al., "Enhanced Plant Growth by Siderophores Produced by Plant Growth-Promoting Rhizobacteria," Nature 286:885-86 (1980)
		68	Kloepper et al., "Emergence-Promoting Rhizobacteria: Description and Implications for Agriculture," In: Iron, Siderophores, and Plant Disease, Swinborne (ed), Plenum, NY, 155-64 (1986)
		69	Kloepper et al., "Relationship of *in vitro* Antibiosis of Plant Growth-Promoting Rhizobacteria to Plant Growth and the Displacement of Root Microflora," Phytopathology 71(10):1020-24 (1981)

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		70	Qui et al., "Treatment of Tomato Seed with Harpin Enhances Germination and Growth and Induces Resistance to *Ralstonia solanacearum*," Phytopathology 87: S80 (1997) (abstract only)
		71	Smith et al., "Potential for Biological Control of Phytophthora Root and Crown Rots of Apple by *Trichoderma* and *Gliocladium* spp.," Phytopathology 80: 880-885 (1991)
		72	Wei et al., "Induced Systemic Resistance to Cucumber Diseases and Increased Plant Growth by Plant Growth-Promoting Rhizobacteria Under Field Conditions," Phytopathology 86:221-224 (1996).
		73	Ahmad et al., "Rhizosphere Competence of *Trichoderma harzianum*," Phytopathology, 77:182-189 (1987)
		74	Stasz et al., "Protoplast Preparation and Fusion in Two Biocontrol Strains of *Trichoderma Harzianum*," Mycologia, 80:141-150 (1988)
		75	Wei et al., "Induced Systemic Resistance by Select Plant Growth-Promoting Rhizobacteria Against Bacterial Wilt of Cucumber and the Beetle Vectors," Phytopathology, 86:1154, Abstract No. 313 (1995)

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